

**Proposal:**

**MOD USA/AI 1.10/1**

## **Article 5 of the Radio Regulations**

### **Section IV – Table of Frequency Allocations**

**148-223 MHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
<b>156.7625-156.8375</b>	<b>MARITIME MOBILE (distress and calling)</b> <b>5.111 5.226 <u>ADD 5.XYZ</u></b>	
<b>156.8375-161.9625</b> <b>FIXED</b> <b>MOBILE except aeronautical mobile</b> <b>5.226, 5.229</b>	<b>156.8375-161.9625</b> <b>FIXED</b> <b>MOBILE</b> <b>5.226, 5.230, 5.231, 5.232</b>	
<b>161.9625-161.9875</b>	<b>MARITIME MOBILE</b> <b>Mobile-satellite (Earth-to-space)</b> <b>Aeronautical mobile (OR)</b> <b>5.NNN</b>	
<b>161.9875-162.0125</b> <b>FIXED</b> <b>MOBILE except aeronautical mobile</b> <b>5.226, 5.229</b>	<b>161.9875-162.0125</b> <b>FIXED</b> <b>MOBILE</b> <b>5.226</b>	
<b>162.0125-162.0375</b>	<b>MARITIME MOBILE</b> <b>Mobile-satellite (Earth-to-space)</b> <b>Aeronautical mobile (OR) 5.229, 5.NNN</b>	
<b>156.8375-162.0375-174</b> <b>FIXED</b> <b>MOBILE except aeronautical mobile</b> <b>5.226 5.227A-5.229</b>	<b>162.0375-174</b> <b>FIXED</b> <b>MOBILE</b> <b>5.226 5.227A-5.230 5.231 5.232</b>	

**ADD USA/AI 1.10/2**

#### **5.XYZ**

*Additional allocation:* the bands 156.7625-156.7875 MHz and 156.8125-156.8375 MHz are also allocated to the mobile-satellite service (Earth-to-space) on a primary basis for the reception of automatic identification system (AIS) emissions, broadcasting long range AIS message (Message 27), as specified in the most recent version of Recommendation ITU-R M.1371, from stations operating in the maritime-mobile service (see Appendix 18). (WRC-12)

**Reasons:** Proposed changes reflect the allocation of 156.775MHz and 156.825 MHz to the required services in Article 5 to support maritime safety and vessel tracking requirements.

**5.NNN**

The use of the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the mobile satellite service (Earth-to-space) and the aeronautical mobile (OR) service is limited to automatic identification system (AIS) emissions operating in accordance with Appendix 18. (WRC-12)

**SUP** 5.227A USA/AI 1.10/3

**MOD** USA/AI 1.10/4

**APPENDIX 18 (Rev.WRC-0712)**

**Table of transmitting frequencies in the VHF  
maritime mobile band**

(See Article 52)

NOTE A – For assistance in understanding the Table, see Notes *a)* to *q)* below. (WRC-07)

NOTE B – The Table below defines the channel numbering for maritime VHF communications based on 25 kHz channel spacing and use of several duplex channels, ~~but~~ and also allows the simplex use of ~~12.5 kHz channel spacing duplex channels~~. The channel numbering for ~~12.5 kHz channels and the conversion of two frequency channels for single-frequency operation of duplex channels~~ shall be in accordance with Recommendations ITU-R M.493 and 1084 (Latest versions) ~~4 Annex 4, Tables 1 and 3.~~ (WRC-0712)

**Reasons:** Proposed changes to NOTE B will allow for more flexibility for simplex (single-channel) use of duplex channels.

**MOD** USA/AI 1.10/5

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
60	<i>m), o)</i>	156.025	160.625		<u>x</u>	x	x
01	<i>m), o)</i>	156.050	160.650		<u>x</u>	x	x
61	<i>m), o)</i>	156.075	160.675		x	x	x
02	<i>m), o)</i>	156.100	160.700		x	x	x
62	<i>m), o)</i>	156.125	160.725		x	x	x
03	<i>m), o)</i>	156.150	160.750		x	x	x
63	<i>m), o)</i>	156.175	160.775		x	x	x
04	<i>m), o)</i>	156.200	160.800		x	x	x
64	<i>m), o)</i>	156.225	160.825		x	x	x
05	<i>m), o)</i>	156.250	160.850		x	x	x
65	<i>m), o)</i>	156.275	160.875		x	x	x
06	<i>f)</i>	156.300		x			
66	<i>m), o)</i>	156.325	160.925		<u>x</u>	x	x
07	<i>m), o)</i>	156.350	160.950		<u>x</u>	x	x
67	<i>h)</i>	156.375	156.375	x	x		
08		156.400		x			
68		156.425	156.425		x		
09	<i>i)</i>	156.450	156.450	x	x		
69		156.475	156.475	x	x		
10	<i>h), q)</i>	156.500	156.500	x	x		
70	<i>f), j)</i>	156.525	156.525	Digital selective calling for distress, safety and calling			
11	<i>q)</i>	156.550	156.550		x		
71		156.575	156.575		x		
12		156.600	156.600		x		
72	<i>i)</i>	156.625		x			
13	<i>k)</i>	156.650	156.650	x	x		
73	<i>h), i)</i>	156.675	156.675	x	x		
14		156.700	156.700		x		
74		156.725	156.725		x		
15	<i>g)</i>	156.750	156.750	x	x		
75	<i>n)</i>	156.775	156.775		x		

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
16	<i>f)</i>	156.800	156.800	DISTRESS, SAFETY AND CALLING			
76	<i>n)</i>	156.825	156.825		x		
17	<i>g)</i>	156.850	156.850	x	x		
77		156.875		x			
18	<i>m)</i>	156.900	161.500		<u>x</u>	x	x
78	<i>m)</i>	156.925	161.525		<u>x</u>	x	x
19	<i>m)</i>	156.950	161.550		<u>x</u>	x	x
79	<i>m)</i>	156.975	161.575		<u>x</u>	x	x
20	<i>m)</i>	157.000	161.600		<u>x</u>	x	x
80	<i>m)</i>	157.025	161.625		<u>x</u>	x	x
21	<i>m)</i>	157.050	161.650		<u>x</u>	x	x
81	<i>m)</i>	157.075	161.675		<u>x</u>	x	x
22	<i>m)</i>	157.100	161.700		x	x	x
82	<i>m), o)</i>	157.125	161.725		x	x	x
23	<i>m), o)</i>	157.150	161.750		x	x	x
83	<i>m), o)</i>	157.175	161.775		x	x	x
24	<i>m), <del>o</del>, <u>s</u>)</i>	157.200	161.800		x	x	x
84	<i>m), <del>o</del>, <u>s</u>)</i>	157.225	161.825		x	x	x
25	<i>m), <del>o</del>, <u>s</u>)</i>	157.250	161.850		x	x	x
85	<i>m), <del>o</del>, <u>s</u>)</i>	157.275	161.875		x	x	x
26	<i>m), <del>o</del>, <u>s</u>)</i>	157.300	161.900		x	x	x
86	<i>m), <del>o</del>, <u>s</u>)</i>	157.325	161.925		x	x	x
27	<i><u>r</u>)</i>	157.350	161.950			x	x
87		157.375	157.375		x		
28	<i><u>r</u>)</i>	157.400	162.000			x	x
88		157.425	157.425		x		
AIS 1	<i>f), l), p)</i>	161.975	161.975				
AIS 2	<i>f), l), p)</i>	162.025	162.025				

**Reasons:** Proposed changes to the Table will allow for more flexibility for simplex (single-channel) use of duplex channels. Additional notes are added to identify channels for E-Navigation and protection of AIS 1 and AIS 2.

## Notes referring to the Table

### General notes

#### MOD USA/AI 1.10/6

- c) The channels of the present Appendix, ~~but preferably channel 28 and~~ with the exception of channels 06, 13, 15, 16, 17, 70, 75 and 76, may be used for direct-printing telegraphy and data transmission, subject to special arrangement between interested and affected administrations.

**Reasons:** Proposed change reflects the need to protect AIS 1 and AIS 2 from adjacent band interference from channel 28.

#### MOD USA/AI 1.10/7

- e) Administrations may apply 12.5 kHz channel interleaving on a non-interference basis to 25 kHz channels, in accordance with the most recent version of Recommendation ITU-R M.1084, provided:
- it shall not affect the 25 kHz channels of the present Appendix maritime mobile distress and safety, AIS, and E-Navigation data exchange frequencies, especially the channels 06, 13, 15, 16, 17, and 70, 24, 25, 26, 84, 85, 86, AIS 1 and AIS 2, nor the technical characteristics set forth in Recommendation ITU-R M.489-2 for those channels;
  - implementation of 12.5 kHz channel interleaving and consequential national requirements shall be subject to coordination with affected administrations. (WRC-07)

**Reasons:** Proposed changes to Note e) identify AIS and E-Navigation channels as additional channels requiring protection from channel interleaving.

#### MOD USA/AI 1.10/8

- n) The use of these channels (75 and 76) should be restricted to navigation-related communications only and all precautions should be taken to avoid harmful interference to channel 16, e.g. by limiting the output power to 1 W or by means of geographical separation. These channels are also allocated to the mobile-satellite service (Earth-to-space) for long range detection of AIS in accordance with recommendation ITU-R M.1371.

**Reasons:** Proposed change protects the channels intended to be used for long-range detection of AIS from harmful interference.

**ADD** USA/AI 1.10/9

r) When using these channels (27 and 28), all precautions should be taken to avoid harmful interference to AIS 1 and AIS 2. (WRC-12)

**Reasons:** Proposed change protects AIS 1 and AIS 2 from harmful interference.

**ADD** USA/AI 1.10/10

s) These channels are designated for the exchange of data for E-Navigation (operations of safety systems for ships and ports) in accordance with Recommendation ITU-R M.1842. (WRC-12)

**Reasons:** Proposed Note s) identifies channels for E-Navigation in Appendix 18.

---

## **Space Services**

**United States of America**

**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**WRC-11 Agenda Item 1.11: to consider a primary allocation to the space research service (Earth-to-space) within the band 22.55-23.15, taking into account the results of ITU-R studies, in accordance with Resolution 753 (WRC-07)**

**Background Information:**

To support the SRS missions in near Earth orbit, including missions in transit to the moon and at or near the moon, downlink (space-to-Earth) transmissions will operate in the 25.5-27.0 GHz SRS allocation. This 1.5 GHz wide downlink band will be used for both scientific data retrieval and voice/video communication with the Earth. However, there is a need for a companion uplink (Earth-to-space) band to provide the mission data, command and control links for these missions. Due to the potential for many concurrent exploration-related systems and the large bandwidth requirements of these systems, especially , it is envisioned that an uplink bandwidth of sufficient primary space research service frequency spectrum in the 22.55-23.15 GHz range will provide the space exploration initiatives adequate uplink (Earth-to-space) bandwidth capacity in a band that is paired with the inter-satellite service and thus is a reasonable companion to the primary space research service 25.5-27.0 GHz space-to-Earth band.

Resolution **753 (WRC-07)** calls for sharing studies between SRS (Earth-to-space) and the fixed, inter-satellite and mobile services in the band 22.55-23.15 GHz to determine appropriate criteria which will provide for sharing between a new SRS (Earth-to-space) allocation and the existing services in the 22.55-23.15 GHz band. These sharing studies have been initiated in ITU-R Working Party 7B, the responsible group for CPM studies in support of WRC-11 agenda item 1.11.

The CPM text for Agenda Item 1.11 has several Methods. Method B recognizes a protection criteria agreed in the ITU-R for the non -GSO ISS links operating in the band above 23.15 GHz. This criteria is proposed for inclusion in the Radio Regulations.

**Proposal**

**Article 5  
Frequency Allocations**

**Section IV – Table of Frequency Allocations  
(See No. 2.1)**

**MOD      USA/1.11/1**



**22-24.75 GHz**

Allocation to services		
Region 1	Region 2	Region 3
<b><u>22.55-22.85</u></b>	FIXED INTER-SATELLITE 5.338A MOBILE <u>SPACE RESEARCH SERVICE (Earth-to-Space) 5.ISS</u> 5.149	
<b><u>22.85-23.55</u></b>	FIXED INTER-SATELLITE 5.338A MOBILE  5.149	

**Reason- This allocation proposal fulfills the requirements of the agenda item and ensures protection of all services in the allocation before the conference.**

**ADD USA/1.11/2**

5.ISS The aggregated unwanted emission levels from all earth stations in the space research service in the band 22.55-22.85 GHz shall not exceed a power density of -215 dBW/Hz at the input to the non-GSO ISS satellite receiver, not to be exceeded for a fraction of time greater than  $10^{-2}$  percent (0.01%) in the band 23.183-23.377 GHz.

**Reason: to ensure protection of the operational ISS links operating in the band 22.15-23.55 GHz.**

---

## **Regulatory Issues**

**UNITED STATES OF AMERICA  
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.6:** to review No. **5.565** of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution **950 (Rev.WRC 07)**, and to consider possible procedures for free-space optical-links, taking into account the results of ITU R studies, in accordance with Resolution **955 (WRC 07)**

**Background Information:** Agenda item 1.6 addresses two distinct issues. The content of this proposal addresses only the updating of No. **5.565** in accordance with Resolution **950 (Rev. WRC-07)**.

The Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations currently exist above 275 GHz, although an entry in the Table for the range 275-1 000 GHz contains a reference to No. **5.565**.

Resolution **950 (Rev. WRC-07)** calls for a re-examination of the frequency bands contained in No. **5.565** with a view to updating this footnote, including advice on the applications suitable for the range 275-3 000 GHz. Passive services such as the Earth exploration-satellite service (EESS), space research service (SRS), and radio astronomy service (RAS) already utilize portions of the 275-3 000 GHz range for scientific observation. Some of these operations measure spectral line and continuum emissions from space while others measure atmospheric and climate-related natural emissions from the Earth and its atmosphere. Resolution **950 (Rev. WRC-07)** resolves to review No. **5.565** to update the information on spectrum use in the frequency range 275-3 000 GHz by the passive services, but specifically excludes allocations in this range. Although the focus of the agenda item is spectrum use by passive services, it is important to recognize that this frequency range concurrently is used for experimentation with, and development of, an array of emerging active service applications.

ITU-R studies of current and projected scientific needs for passive use of the frequency range 275-3 000 GHz resulted in new recommendations and reports. These studies revealed a need to update No. **5.565** through the addition of some new bands of interest and the deletion of some existing bands. Technical factors strongly influence use of the range 275-3 000 GHz. First, the Earth's atmosphere absorbs signals at these frequencies, especially in the range 1 000-3 000 GHz where the atmosphere is nearly opaque. Second, antenna beamwidths are extremely narrow at such high frequencies.

Interference from non-geostationary satellites into terrestrial stations is highly unlikely due to the above factors and the speed of the spacecraft relative to Earth. With regard to geostationary satellites, coordination would resolve the potential interference from the unlikely scenario of transmissions with maximum antenna coupling and minimum propagation loss. As a result, passive and active services can share frequencies above 1 000 GHz without constraints.

**Proposal:**

**ARTICLE 5**  
**Frequency allocations**

**Section IV – Table of Frequency Allocations**  
(See No. 2.1)

**MOD**      USA/AI 1.6/1

**5.565** A number of frequency bands in the frequency band range 275-13 000 GHz may be are used by administrations for experimentation with, and development of, various active and passive services applications. This frequency range also is used for experimentation with, and development of, various active service applications. In this band-frequency range 275-1 000 GHz a need has been identified for the following frequency bands for measurements by spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

- Earth exploration-satellite service (passive) and space research service (passive): 275-277286 GHz, 294296-306 GHz, 316313-334356 GHz, 342-349 GHz, 363361-365 GHz, 371369-389392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 442439-444467 GHz, 496477-506502 GHz, 523-527 GHz, 546538-568581 GHz, 624611-629630 GHz, 634-654 GHz, 659657-661692 GHz, 684-692 GHz, 713-718 GHz, 730729-732733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 851850-853854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, and 951-956 GHz, 968-973 GHz and 985-990 GHz.

In the frequency range 1 000-3 000 GHz, passive services may use any band segment for ground- and space-based experimentation without constraints on any other services operating in this range.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned 275-3 000 GHz frequency rangeband.

**Reasons:** Based on the studies performed, the list of EESS and SRS bands of interest in the range 275-1 000 GHz need to be updated in No. 5.565. ITU-R studies have shown that unconstrained sharing between passive and active services in the frequency range 1 000-3 000 GHz is feasible; therefore passive services should have use of any band segment in this frequency range for experimentation.

**SUP**      USA/AI 1.6/2

**RESOLUTION 950 (Rev. WRC-07)**  
**Consideration of the use of the frequencies**  
**between 275 and 3 000 GHz**

**Reasons:** Required studies have been completed. The resolution is no longer needed.

---

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

**WRC-11 Agenda Item 7:** *to consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: “Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks”, in accordance with Resolution 86 (Rev.WRC-07);*

**Issue:** Nos. 23.13, 23.13A, 23.13B and 23.13C of the Radio Regulations

**Background information:**

No. 23.13 and its sub-provisions deal with broadcasting-satellite service (BSS) systems which have the capability to serve other countries. No. 23.13 has been the subject of intense debate at many past WRCs. WRC-95 adopted Resolution 531 (WRC-95), which (through Section 5.3.1 of Annex 1) instructed the RRB to modify its Rule of Procedure for (then) S23.13. The instructions were very similar to the provisions 23.13A and 23.13B added by WRC-2000—an administration must comment within four months to object to its inclusion in the service area of a BSS network after its publication, and if no agreement is reached between the concerned administrations, then the service area would be modified to exclude the objecting administration’s territory, without changing the network’s coverage area. Non-commenting administrations were assumed to have no objection to inclusion in the service area (which is different from provision 23.13C adopted subsequently by WRC-2000). Resolution 531 (WRC-95) also maintained clear separation between agreements under S23.13 and Article 4 of Appendix 30.

At WRC-97, Resolution 536 was adopted, regarding the operation of broadcasting satellites serving other countries. It resolves “that, in addition to observing No. S23.13/2674, and before providing satellite broadcasting services to other administrations, administrations originating the services should obtain the agreement of those other administrations.” The United States took a reservation against this Resolution stating “that it disagrees with aspects of the resolution that would encourage administrations originating satellite broadcasting services to other administrations to obtain further agreement of administrations before providing such service.”

Finally, at WRC-2000, after extensive and contentious discussion, a balance was reached among the very different views regarding the issue. No. 23.13 was modified to include specific provisions—23.13A, 23.13B, and 23.13C—which detail how this provision is to be implemented in practice. Nos. 23.13A, 23.13B and 23.13C were carefully crafted to describe the actions required if an agreement cannot be reached with an administration not wishing to be included in the BSS satellite’s service area. These provisions specifically require modification of a BSS satellite’s *service area*, which means the earth stations associated with the satellite network would not receive protection on the territory of the countries whose objection cannot be resolved. WRC-2000 also adopted Resolution 139, regarding use of fixed-satellite service systems for the provision of direct-to-home television broadcasting. This short Resolution ultimately asks for the ITU-R to conduct studies of use of FSS allocations for DTH and to report to WRC-03 for possible inclusion in a future agenda. No action was taken at WRC-03 in this regard and WRC-07 since decided to suppress the Resolution.

It is worth noting that since WRC-2000, Nos. **23.13**, **23.13A**, **23.13B** and **23.13C** have not been touched, with no proposals from any administration to WRC-03 and -07 addressing these provisions, underscoring the fact that an appropriate balance between the concerns of administrations was achieved.

Recently there have been some speculations with regard to changes to No. **23.13** and its sub-provisions in several Working Parties of the ITU-R. One suggestion is that footnotes be added to the title of Article **23** stating that Section II of the Article applies to FSS transponders used for DTH transmissions, implying that No. **23.13** and its sub-provisions would apply to DTH FSS. Other suggested changes have been to modify Nos. **23.13B** and **23.13C** to be “consistent” with the wording of No. **23.13** itself. Such changes to **23.13B** and **23.13C** would require that the satellite’s physical “coverage area” be modified, contrary to the current requirement that its “service area” be modified. When these suggestions were raised in several Working Parties there was considerable opposition, and little support.

There are serious issues associated with the suggested changes to No **23.13**. Firstly, the United States does not support any extension of No. **23.13** and its sub-provisions, or Article **23**, to other services or applications like direct-to-home FSS. No useful purpose would be served by abandoning the present distinction between the BSS and the FSS. Many applications are unique to only one of the services and these applications justify maintaining the distinction between them.

Further, there is no inconsistency between No. **23.13** and its sub-provisions. The wording of No. **23.13A** through **23.13C**, which describe how No. **23.13** is implemented in practice, was carefully chosen in order to reach agreement across many administrations with diverse views at WRC-2000. The United States does not support reopening the difficult discussions associated with No. **23.13** and its sub-provisions.

In addition, Nos. **23.13A**, **23.13B** and **23.13C** were carefully crafted to specifically require only the modification of a BSS satellite’s *service area*, recognizing that modification of a satellite’s *coverage area* is simply not technically feasible, either from the perspective of modifying a satellite’s antenna, or designing a satellite antenna to exclude one country’s territory when the satellite provides service to neighboring countries. Such proposals would have grave detrimental effects on the future of the satellite industry as satellites are inherently regional or international in nature.

**Proposal:**

**ARTICLE 23**

**Broadcasting services**

**Section I – Broadcasting service**

\* \* \* \* \*

**USA/7/1**

**NOC**

## **Section II – Broadcasting-satellite service**

**23.13 § 4** In devising the characteristics of a space station in the broadcasting-satellite service, all technical means available shall be used to reduce, to the maximum, the radiation over the territory of other countries unless an agreement has been previously reached with such countries.

**USA/7/2**

### **NOC**

**23.13A** If the Bureau receives an indication of a written agreement under No. **23.13**, it shall include reference to that agreement when the assignments to the system are recorded with reference to No. **23.13** in the Remarks column of the Master International Frequency Register or included in the Regions 1 and 3 List. (WRC-2000)

**USA/7/3**

### **NOC**

**23.13B** If, within the four-month period following the publication of the Special Section for a broadcasting-satellite service (except sound broadcasting) network submitted for coordination under Article 9 or Appendix 30, an administration informs the Bureau that all technical means have not been used to reduce the radiation over its territory, the Bureau shall draw the attention of the responsible administration to the comments received. The Bureau shall request the two administrations to make every effort possible in order to resolve the issue. Either administration may request the Bureau to study the matter and submit its report to the administrations concerned. If no agreement can be reached, then the Bureau shall delete the territory of the objecting administration from the service area without adversely affecting the rest of the service area and inform the responsible administration. (WRC-2000)

**USA/7/4**

### **NOC**

**23.13C** If, after the four-month period mentioned above, an administration objects to remaining in the service area, the Bureau shall delete the territory of the objecting administration from the service area of the broadcasting-satellite service (except sound broadcasting) network concerned without adversely affecting the rest of the service area and inform the responsible administration. (WRC-2000)

**Reasons:** No. **23.13** has been a very contentious issue at several past WRCs. The difficult compromise reached at WRC-2000 (where Nos. **23.13A** thru **23.13C** were added to explain what responsibilities administrations and the Radiocommunications Bureau have under No. **23.13**) represents a delicate balance between the strongly differing views and should not be revisited. Nos. **23.13B** and **23.13C** were carefully drafted to require only modification of a satellite network's service area in the event of a continuing disagreement. Therefore, the United States is of the view that no action/modification is required on Nos. **23.13B** and **23.13C**.



**ATTACHMENT 2**  
**to FCC Public Notice DA 10-1408**

**Draft Proposals formulated and approved within the National  
Telecommunications and Information Administration:**

**Document WAC/068(28.07.10)**

Ms. Mindel De La Torre  
Chief of the International Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street SW  
Washington, DC 20554

Dear Ms. De La Torre:

The National Telecommunications and Information Administration (NTIA) on behalf of the Executive Branch agencies, approves the release of two draft Executive Branch proposals for WRC-12 agenda items 1.6 (Resolution 950) and 1.10.

For agenda item 1.6 (Resolution 950), NTIA proposes to modify No. 5.565 to update the list of use of 275 – 3 000 GHz by the passive services. NTIA also proposes a mobile-satellite service (Earth-to-space) allocation for Appendix 18 Channels 75 and 76 to improve satellite detection of the Automatic Identification System under agenda item 1.10.

NTIA considered the Federal agencies' input toward the development of U.S. proposals for WRC-12. NTIA forwards this package for your consideration and review by your WRC-12 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

*(Original Signed February 25, 2010)*

Karl B. Nebbia  
Associate Administrator  
Office of Spectrum Management

**UNITED STATES OF AMERICA**  
**DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.6:** *to review No. 5.565 of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution 950 (Rev. WRC 07), and to consider possible procedures for free-space optical-links, taking into account the results of ITU R studies, in accordance with Resolution 955 (WRC 07)*

**Background Information:** Agenda item 1.6 addresses two distinct issues. The content of this proposal addresses only the updating of No. 5.565 in accordance with Resolution 950 (Rev. WRC-07).

The Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations currently exist above 275 GHz, although an entry in the Table for the range 275-1 000 GHz contains a reference to No. 5.565.

Resolution 950 (Rev. WRC-07) calls for a re-examination of the frequency bands contained in No. 5.565 with a view to updating this footnote, including advice on the applications suitable for the range 275-3 000 GHz. Passive services such as the Earth exploration-satellite service (EESS), space research service (SRS), and radio astronomy service (RAS) already utilize portions of the 275-3 000 GHz range for scientific observation. Some of these operations measure spectral line and continuum emissions from space while others measure atmospheric and climate-related natural emissions from the Earth and its atmosphere. Resolution 950 (Rev. WRC-07) resolves to review No. 5.565 to update the information on spectrum use in the frequency range 275-3 000 GHz by the passive services, but specifically excludes allocations in this range.

ITU-R studies of current and projected scientific needs for passive use of the frequency range 275-3 000 GHz resulted in new recommendations and reports. These studies revealed a need to update No. 5.565 through the addition of some new bands of interest and the deletion of some existing bands. Technical factors strongly influence use of the range 275-3 000 GHz. First, the Earth's atmosphere absorbs signals at these frequencies, especially in the range 1 000-3 000 GHz where the atmosphere is nearly opaque. Second, antenna beamwidths are extremely narrow at such high frequencies.

Interference from non-geostationary satellites into terrestrial stations is highly unlikely due to the above factors and the speed of the spacecraft relative to Earth. With regard to geostationary satellites, coordination would resolve the potential interference from the unlikely scenario of transmissions with maximum antenna coupling and minimum propagation loss. As a result, passive and active services can share frequencies above 1 000 GHz without constraints.

**Proposal:**

**ARTICLE 5**  
**Frequency allocations**

**Section IV – Table of Frequency Allocations**  
(See No. 2.1)

**MOD**      USA/AI 1.6/1

**5.565**      A number of frequency bands in the frequency band range 275-3 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services applications. In this band-frequency range 275-1 000 GHz a need has been identified for the following frequency bands for measurements by spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

- Earth exploration-satellite service (passive) and space research service (passive): 275-277286 GHz, 294296-306 GHz, 316313-334356 GHz, 342-349 GHz, 363361-365 GHz, 374369-389392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 442439-444467 GHz, 496477-506502 GHz, 523-527 GHz, 546538-568581 GHz, 624611-629630 GHz, 634-654 GHz, 659657-661692 GHz, 684-692 GHz, 713-718 GHz, 730729-732733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 851850-853854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, and 951-956 GHz, 968-973 GHz and 985-990 GHz.

In the frequency range 1 000-3 000 GHz, passive services may use any band segment for ground- and space-based experimentation without constraints on any other services operating in this range.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation table is established in the above-mentioned 275-3 000 GHz frequency rangeband.

**Reasons:** Based on the studies performed, the list of EESS and SRS bands of interest in the range 275-1 000 GHz need to be updated in No. 5.565. ITU-R studies have shown that unconstrained sharing between passive and active services in the frequency range 1 000-3 000 GHz is feasible; therefore passive services should have use of any band segment in this frequency range for experimentation.

**SUP**      USA/AI 1.6/2

**RESOLUTION 950 (Rev. WRC-07)**  
**Consideration of the use of the frequencies**  
**between 275 and 3 000 GHz**

**Reasons:** Required studies have been completed. The resolution is no longer needed.

**UNITED STATES OF AMERICA**  
**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.10:** to examine the frequency allocation requirements with regard to operation of safety systems for ships and ports and associated regulatory provisions, in accordance with Resolution 357 (WRC-07)

**Background Information:** Modifying the Radio Regulations to reflect the satellite monitoring of Automatic Identification System (AIS) equipped vessels is critical to search and rescue, safety of navigation, and the safe movement and tracking of vessels. This proposal specifically adds a mobile-satellite service (MSS) (Earth-to-space) allocation to 156.775 MHz and 156.825 MHz (Appendix 18, Channels 75 and 76) for improved AIS satellite detection using message 27.

This proposal satisfies the International Maritime Organization (IMO) Resolution MSC 74(69), which requires that AIS improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS). Improved satellite detection of AIS will satisfy IMO functional requirements for collision avoidance, obtaining information about a ship and its cargo, and providing ship-to-shore traffic management. The ITU-R completed studies to identify VHF channels in Appendix 18 for improved AIS satellite detection and recently updated Recommendation ITU-R M.1371-3, "Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile band," to reflect specialized message 27 for long-range AIS broadcast messages of AIS Class A equipped vessels.

This proposed MSS (Earth-to-space) allocation for satellite AIS is compatible with the existing navigation-related communications of the frequencies as designated in Appendix 18, note *n*). ITU-R Report M.[SAT-AIS], "Improved satellite detection of AIS," and the recently updated ITU-R Recommendation M.1371-3, confirm the compatibility and show that the transmission of new AIS message 27 contains navigational information including position, speed over ground, course over ground, navigational status. The proposed MSS (Earth-to-space) frequencies (channels 75 and 76) are for navigation and serve as guard-bands for channel 16 - the safety and distress frequency. Precautions to avoid harmful interference to channel 16 are achievable by prohibiting message 27 transmissions within 40 nautical miles of coast stations. Therefore, the new proposed footnote *r*) is fully compliant with footnote *n*) in Appendix 18.

**Proposal:**

**ARTICLE 5**

**Section IV – Table of Frequency Allocations**  
(See No. 2.1)

**MOD** USA/AI 1.10/1

148-223 MHz

Allocation to services		
Region 1	Region 2	Region 3
156.7625-156.8375	MARITIME MOBILE (distress and calling) 5.111 5.226 ADD 5.XYZ	

**Reasons:** Proposed changes reflect the allocation of 156.7625-156.8375 MHz to the required services in Article 5 to support maritime safety and vessel tracking requirements.

**ADD** USA/AI 1.10/2

**5.XYZ** *Additional allocation:* the bands 156.775 MHz and 156.825 MHz are also allocated to the Mobile-Satellite Service (Earth-to-space) for the reception of automatic identification system (AIS) emissions, using solely message 27 as specified in Recommendation ITU-R M.1371, from stations operating in the maritime-mobile service (see Appendix 18).

**Reasons:** Proposed changes reflect the allocation of 156.775MHz and 156.825 MHz to the required services in Article 5 to support maritime safety and vessel tracking requirements.

**MOD** USA/AI 1.10/3

**APPENDIX 18 (Rev. WRC-1207)**  
**Table of transmitting frequencies in the**  
**VHF maritime mobile band**

(See Article 52)

**NOTE A** – For assistance in understanding the Table, see Notes a) to q ) below. (WRC-07)

**NOTE B** – The Table below defines the channel numbering for maritime VHF communications based on 25 kHz channel spacing and use of several duplex channels, but also allows the use of 12.5 kHz channel spacing. The channel numbering for 12.5 kHz channels and the conversion of two-frequency channels for single-frequency operation shall be in accordance with Recommendation ITU-R M.1084-4 Annex 4, Tables 1 and 3. (WRC-07)

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
60	m), o)	156.025	160.625			X	x
01	m), o)	156.050	160.650			X	x
61	m), o)	156.075	160.675		x	X	x
02	m), o)	156.100	160.700		x	X	x
62	m), o)	156.125	160.725		x	X	x
03	m), o)	156.150	160.750		x	X	x
63	m), o)	156.175	160.775		x	X	x
04	m), o)	156.200	160.800		x	X	x
64	m), o)	156.225	160.825		x	X	x
05	m), o)	156.250	160.850		x	X	x
65	m), o)	156.275	160.875		x	X	x
06	f)	156.300		X			
66	m), o)	156.325	160.925			X	x
07	m), o)	156.350	160.950			X	x
67	h)	156.375	156.375	X	x		
08		156.400		X			
68		156.425	156.425		x		
09	i)	156.450	156.450	X	x		
69		156.475	156.475	X	x		
10	h), q)	156.500	156.500	X	x		
70	f), j)	156.525	156.525	Digital selective calling for distress, safety and calling			
11	q)	156.550	156.550		x		
71		156.575	156.575		x		
12		156.600	156.600		x		
72	i)	156.625		X			
13	k)	156.650	156.650	X	x		
73	h), i)	156.675	156.675	X	x		
14		156.700	156.700		x		
74		156.725	156.725		x		

Channel designator	Notes	Transmitting frequencies (MHz)		Inter-ship	Port operations and ship movement		Public correspondence
		From ship stations	From coast stations		Single frequency	Two frequency	
15	g)	156.750	156.750	X	x		
75	n) r)	156.775	156.775		x		
16	f)	156.800	156.800	DISTRESS, SAFETY AND CALLING			
76	n) r)	156.825	156.825		x		
17	g)	156.850	156.850	X	x		
77		156.875		X			
18	m)	156.900	161.500		x	X	x
78	m)	156.925	161.525			X	x
19	m)	156.950	161.550			X	x
79	m)	156.975	161.575			X	x
20	m)	157.000	161.600			X	x
80	m)	157.025	161.625			X	x
21	m)	157.050	161.650			X	x

81	<i>m)</i>	157.075	161.675			X	x
22	<i>m)</i>	157.100	161.700		x	X	x
82	<i>m), o)</i>	157.125	161.725		x	X	x
23	<i>m), o)</i>	157.150	161.750		x	X	x
83	<i>m), o)</i>	157.175	161.775		x	X	x
24	<i>m), o)</i>	157.200	161.800		x	X	x
84	<i>m), o)</i>	157.225	161.825		x	X	x
25	<i>m), o)</i>	157.250	161.850		x	X	x
85	<i>m), o)</i>	157.275	161.875		x	X	x
26	<i>m), o)</i>	157.300	161.900		x	X	x
86	<i>m), o)</i>	157.325	161.925		x	X	x
27		157.350	161.950			X	x
87		157.375	157.375		x		
28		157.400	162.000			X	x
88		157.425	157.425		x		
AIS 1	<i>f), l), p)</i>	161.975	161.975				
AIS 2	<i>f), l), p)</i>	162.025	162.025				

**Reasons:** Proposed changes reflect the allocation of 156.775 MHz and 156.875 MHz to the required services in RR Appendix 18 to support maritime safety and vessel tracking requirements.

#### Notes referring to the Table

##### *General notes*

##### **ADD** USA/AI 1.10/4

**r)** Channels 75 and 76 are allocated to the mobile-satellite service (Earth-to-space) for the transmission of AIS message 27 from ships as defined in Recommendation ITU-R M.1371.

**Reasons:** Proposed footnote reflects the allocation of 156.775 MHz and 156.875 MHz to the required services in Appendix 18 to support maritime safety and vessel tracking requirements.



**Document WAC/069(28.07.10)**

Ms. Mindel De La Torre  
Chief of the International Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street SW  
Washington, DC 20554

Dear Ms. De La Torre:

The National Telecommunications and Information Administration (NTIA) on behalf of the Executive Branch agencies, approves the release of a draft Executive Branch proposal for WRC-12 agenda item 1.9. NTIA proposes modifications to Appendix 17 of the *Radio Regulations*, along with other changes, that would provide HF frequencies for new digital technologies in the maritime mobile service.

NTIA considered the Federal agencies' input toward the development of U.S. proposals for WRC-12. NTIA forwards this package for consideration and review by your WRC-12 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

*(Original Signed March 17, 2010)*

Karl B. Nebbia  
Associate Administrator  
Office of Spectrum Management

**UNITED STATES OF AMERICA**  
**DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.9:** to revise frequencies and channelling arrangements of Appendix 17 to the Radio Regulations, in accordance with Resolution 351 (Rev.WRC-07), in order to implement new digital technologies for the maritime mobile service

**Background Information:** The introduction of new data exchange technologies<sup>1</sup> in the HF maritime mobile service is providing an alternative to narrow-band direct printing (NBDP) technology. According to the International Maritime Organization, current NBDP applications include maritime safety information (MSI) broadcasts, ship reporting, weather forecasts and business communications (e.g. fishing fleets). Since alternative data communication technologies for these functions are available, NBDP equipment use is in rapid decline. However, NBDP telegraphy remains essential for distress communications in the polar regions (sea area A4) where geostationary satellites cannot provide coverage and other terrestrial means of communication are unreliable.

The global maritime community intends to improve efficiency and flexibility in the HF maritime mobile service spectrum by designating certain assignable frequencies in Appendix 17 to data transmissions using new data exchange technologies. This proposal would:

- 1) significantly reduce the number of NBDP frequencies to those actually used for NBDP telegraphy and the GMDSS/NBDP core frequencies (Appendix 15);
- 2) allow for the use of the current NBDP bands for digital data transmissions, subject to not claiming protection from nor causing harmful interference to other stations in the maritime mobile service using NBDP technology until December 31, 2014;
- 3) make new digital data transmissions primary in the current NBDP bands effective January 1, 2015, though stations could use NBDP technology subject to not claiming protection from nor causing harmful interference to stations in the maritime mobile service using digital data transmissions;
- 4) re-designate the frequencies currently assignable to stations using facsimile, wide-band telegraphy and Morse telegraphy A1A/A1B to stations using data transmission without a transition period;
- 5) neither specify nor limit the bandwidth of new digital transmissions;
- 6) allow stations using wide-band telegraphy or Morse telegraphy A1A/A1B to continue on their currently assigned frequencies subject to not claiming protection from nor causing harmful interference to stations in the maritime mobile service using digital data transmissions;
- 7) not modify Appendix 25 radiotelephony bands, but would allow for the use of digital data transmissions in the radiotelephony bands in accordance with the Appendix 25 allotment plan; and
- 8) provide some flexibility to administrations in portions of the bands 4 MHz, 6 MHz and 8 MHz to assign new simplex radiotelephony frequencies in accordance with No. 52.177, subject to not claiming protection from stations in the maritime mobile service using digital data transmissions.

---

<sup>1</sup> See Recommendation ITU-R M.1798 *Characteristics of HF radio equipment for the exchange of digital data and electronic mail in the maritime mobile service*